Hazardous Substances Emergency Events Surveillance Program

Methamphetamine-Related Incidents Included in the Hazardous Substances Emergency Event Surveillance Database in Washington State, 2001

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METHAMPHETAMINE-RELATED INCIDENTS INCLUDED IN THE HSEES DATABASE IN WASHINGTON STATE, 2001

The Hazardous Substances Emergency Events Surveillance (HSEES) program, sponsored by the Agency for Toxic Substances and Disease Registry (ATSDR), tracks emergency releases of non-petroleum hazardous substances. The Washington State Department of Health has been involved in the HSEES program since its inception in 1991. Specific data on these events and their associated injuries are collected to provide information to be used to minimize or prevent future events and injuries.

During 2001, there were a total of 91 methamphetamine-related events that met the criteria for inclusion in the HSEES dataset. There were injuries associated with 35 (38%) of these, with a total of 66 people having been injured. Methamphetamine-related HSEES events occurred in nineteen counties in the state. Table 1, below, shows the distribution of events and injuries by county. Spokane County had the greatest number, accounting for nearly a quarter of all incidents. King and Pierce counties together accounted for over 27%. The remainder were scattered around the state with some counties reporting meth-related incidents for the first time this year as an increasing number of law-enforcement personnel become trained to identify clandestine labs.

Table 1. Meth-related HSEES events and injuries in Washington State in 2001 by county.

County	Number of Events	Number of Injuries
Benton	4	5
Chelan	3	1
Clallam	1	0
Clark	3	0
Cowlitz	1	2
Grant	2	1
Grays Harbor	5	5
King	13	9
Kittitas	1	1
Lewis	4	4
Mason	3	3
Okanogan	1	3
Pacific	1	0
Pierce	12	4
Skagit	5	5
Snohomish	3	6
Spokane	22	12
Thurston	3	1
Yakima	4	4
Total	91	66

The mere presence of a methamphetamine lab is not sufficient for inclusion in the HSEES database. To be included, there must be an actual release of a hazardous chemical within 72 hours of the authorities initiating their investigation. These events include drug labs in residences or motel rooms, transport of methamphetamine-related chemicals or actual mobile meth labs, and the illegal dumping of meth-related chemicals. Instances where meth chemicals are found but are contained are not included.

Injuries Sustained During Methamphetamine-Related HSEES Events

Responder injuries accounted for 25 (38%) of the 66 total injured during meth-lab related HSEES events. Nineteen of those injured were police officers, five were firefighters, and one was a responder of unknown type. The high rate of police officer injuries is related to the increasing likelihood of discovering meth labs during routine calls. For example, an officer might open the trunk of a car during a routine traffic stop and be overcome by chemical fumes of a mobile meth lab. Responding to a domestic violence call may also result in the discovery of a meth lab. Police officers were most likely to experience respiratory irritation and/or dizziness or other central nervous system problems (such as lightheadedness, numbness, etc.). Firefighters were more likely to suffer from thermal burns and eye irritation.

Members of the general public accounted for 22 (33%) of those injured. This included three children whose caretakers were either visiting or living in homes where there was a meth lab. The remaining 19 were meth "cookers" who were injured during fires or explosions of chemicals. Adults in this category were much more likely to experience chemical or thermal burns. Nausea was also reported frequently, often accompanied by eye irritation. Two of the children experienced respiratory irritation. The other child, a toddler, received chemical burns, eye, respiratory and skin irritation after direct exposure to a bucket of lye/toluene mixture.

Nineteen people (29%) who were injured were employees of businesses where meth labs were illegally set up (motels) or where meth chemicals were illegally dumped (refuse pickup and transfer facilities, liquid propane gas dealers). This number is probably low because some employees may neglect to report injuries for fear of losing their jobs. Respiratory irritation, nausea and headache were the most frequently reported injuries in this group.

HSEES investigators do not record identifying information on individuals, however they do collect age and gender information of those injured. Table 2 shows the distribution by age and sex of those injured in HSEES meth events in 2001. Forty-five of the total 66 people who were injured had known age. Of these, three were children age six years or younger; three were age 18 or 19. Thirty-two of those injured (about half) were ages 20-39. Of those whose gender was known, it was three times more likely that individuals injured in meth-related events were male rather than female. Age or sex information was unavailable for seven (11%) of those injured.

Table 2. Distribution by age and sex of those injured during meth-related HSEES events in Washington State in 2001.

Age	0-19	20-29	30-39	40-49	50-59	Unknown age	Totals
Males	6	9	12	2	5	10	44
Females	0	4	7	0	0	4	15
Sex not recorded	0	0	0	0	0	7	7
Totals	6	13	19	2	5	21	66

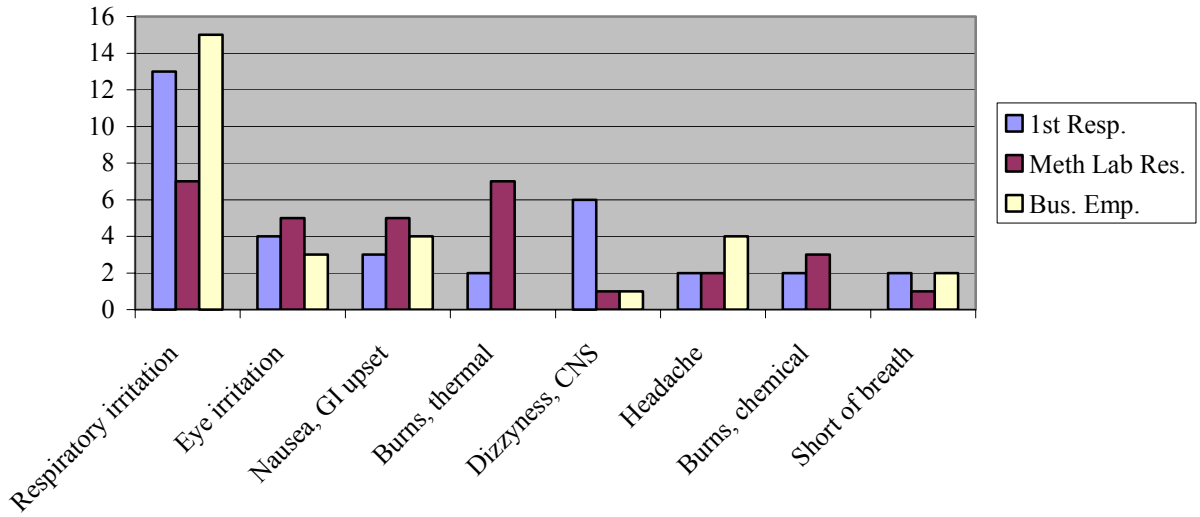
Type of medical treatment given for injuries is used as a marker of injury severity. The data on injury severity is shown in Table 3. There were no deaths recorded from meth-related HSEES events in 2001. Four people (6%) sustained serious injuries requiring hospitalization. Twenty-seven people (41%) were treated in emergency rooms and released. The remaining 33 people (50%) were about equally divided between those who were treated at the scene and those who experienced and reported symptoms within 24 hours of the event.

Table 3. Severity of injuries from meth-related HSEES events reported in Washington State in 2001.

Hospital, Admitted	Hospital / treated and released	Hospital, Observation only	Treated on the scene	Physician visit	Injury reported to an official
4 (6%)	27 (41%)	1 (1.5%)	17 (26%)	1 (1.5%)	16 (24%)

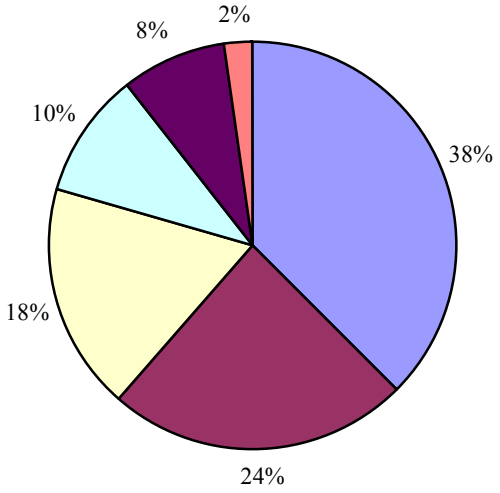
Respiratory irritation was by far the most frequent injury reported, followed by eye irritation and gastrointestinal problems. Other injuries included thermal burns, dizziness and other central nervous system problems, headache, chemical burns, shortness of breath, trauma and skin irritation. (Some persons experienced more than one type of injury.) Figure 1 displays the distribution of injuries sustained by category of those injured. Categories used were: 1) First responders, 2) Methamphetamine lab residents and 3) Business employees. Since manufacture of illegal drugs is not a legitimate business, meth "cookers" are considered members of the general public rather than employees.

Figure 1. Types of injuries sustained during meth-related HSEES events in Washington State in 2001



A wide variety of substances were released during methamphetamine-related HSEES events in 2001. Figure 2 shows how these were categorized and the relative frequency of their release. Events where ammonia was released were slightly more likely to include injuries than were non-ammonia events.

Figure 2. Hazardous materials released at Meth-related HSEES events in Washington State, 2001.



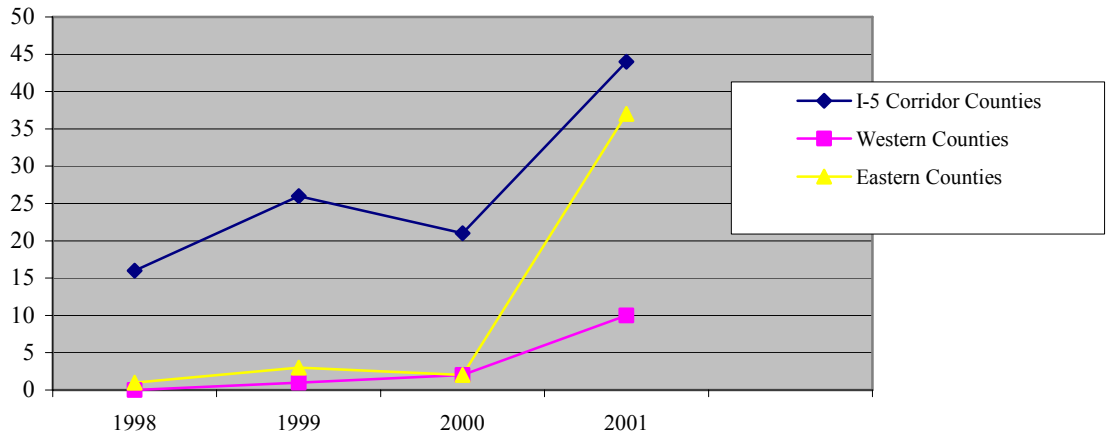
Categories of chemicals released during meth-related HSEES events:

- Solvents – 38%
- Ammonia – 24%
- Volatile organic – 18%
- Other inorganic – 10%
- Acids – 8%
- Bases – 2%

Geographical Trends In Methamphetamine-Related HSEES Events

Data from the years 1998 through 2001 was compared to evaluate geographical trends within the state. The distribution of events by year in three regions is shown in Figure 3. Counties along the I-5 corridor (Clark, Cowlitz, King, Lewis, Pierce, Skagit, Snohomish, Thurston) accounted for 94% of all HSEES meth events in 1998 and virtually 100% of meth injuries. By 2001, the quantity of reported events had nearly tripled in this region. Counties in Eastern Washington (Benton, Chelan, Grant, Kittitas, Okanogan, Spokane, Whitman, Yakima) accounted for 5 to 10% of events during 1997 through 2000. In 2001 there was a very significant increase in meth events in Spokane County, accounting for most of the growth in the Eastern Washington region. Counties in Western Washington that are not part of the I-5 corridor (Clallam, Grays Harbor, Jefferson, Kitsap, Mason, Pacific) saw no activity in 1998, but gradually saw an increase until, by 2001, they accounted for over 10% of the total.

Figure 3. Methamphetamine-related HSEES events in Washington State by Region, 1998-2001.



I-5 Corridor Counties: Clark, Cowlitz, King, Lewis, Pierce, Skagit, Snohomish, Thurston
Western Counties: Clallam, Grays Harbor, Jefferson, Kitsap, Mason, Pacific
Eastern Counties: Benton, Chelan, Grant, Kittitas, Okanogan, Spokane, Whitman, Yakima

An evaluation of injuries from methamphetamine-related HSEES events by region (Figure 4) shows an interesting pattern for counties along the I-5 corridor. While having more events over time, the number of injuries each year from 1998 through 2000 actually decreased. Although there was a substantial increase in injuries in 2001, it failed to reach the 1998 level. The injury patterns for the other two regions reflect their numbers of events.

Figure 4. Injuries from Methamphetamine-related HSEES events by Region in Washington State, 1998-2001.

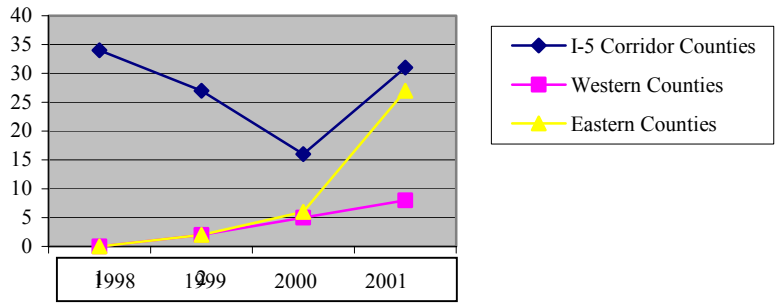


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Table 4 shows the rates of injuries per event by region (expressed as injuries per 100 events for ease of comparison and to avoid fractions). There has actually been a steady decline in the rate of injuries per event in the I-5 corridor counties. The remaining western counties had very high rates during 1999 and 2000, but showed a strong decline in 2001. Eastern Washington counties also showed a steep drop in their rate of injuries per event in 2001. This is a very encouraging trend which may reflect the increased training and experience of first responders in recognizing potential meth labs and their accompanying dangers.

Table 4. Injury rates+ from Methamphetamine-related HSEES events, by Region in Washington State, 1998-2001.

Region	1998	1999	2000	2001
I-5 Corridor Counties*	213	103	76	70
Western Counties (non-I-5 corridor)**	N/A	200	250	80
Eastern Counties***	N/A	67	300	73

+Expressed in injuries per event times 100.
* Clark, Cowlitz, King, Lewis, Pierce, Skagit, Snohomish, Thurston
** Clallam, Grays Harbor, Jefferson, Kitsap, Mason, Pacific
*** Benton, Chelan, Grant, Kittitas, Okanogan, Spokane, Whitman, Yakima

Discussion And Recommendations

Washington State continues to see a rapid growth in methamphetamine lab activity. King, Pierce and Spokane counties had the highest numbers of meth-related HSEES events. The most frequent injury reported was respiratory irritation; injuries were most often treated in hospital emergency rooms. First responders, primarily law enforcement personnel, comprised the largest number of people injured, followed by meth "cookers." Employees of motels and refuse

disposal companies were also frequent victims. Of the variety of hazardous substances found during meth-related HSEES events, solvents and ammonia were the most frequently released. A reduction in the rate of injuries per event was seen in all regions of Washington State in 2001, most likely due to continued training of first responders in the identification and dangers of meth labs. Continued emphasis on responder training is recommended since the potential for injury from meth-related activity is likely to remain significant for the foreseeable future.